PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Kazuhito FUJII et al.

Application No.: 10/553,724

Filed: October 19, 2005

Group Art Unit: 1794

Examiner: K. KRUER

Docket No.: 125723

For: COVER TAPE FOR TAPE-PACKAGING ELECTRONIC COMPONENTS

DECLARATION UNDER 37 C.F.R. §1.132

I, Shinnichi KATO, a citizen of Japan, hereby declare and state:

1. I have a degree in Master of Electric and Electronics Field which was conferred upon me by Shizuoka University in Shizuoka in 2001.

2. I have been employed by Dai Nippon Printing Co., Ltd. since 2001 and I have had a total of three years of work and research experience in the field of cover tape.

3. I am a named inventor in the above-captioned patent application.

4. I have reviewed the composition recited in the claims of the above-identified application, and the publications cited in the Office Action dated May 18, 2009.

5. The Office Action cites Miyamoto (JP 08-258888, hereinafter "Miyamoto).

6. The cited publication does not disclose or appreciate all of the features or advantages of the claimed cover tape.

7. Based on my review of Miyamoto, the ethylene-alpha-olefin copolymer disclosed in Miyamoto is not a linear low-density polyethylene (LLDPE) with a softening temperature in the range of 75 °C to 97 °C for the following reasons.

8. It is known that the melting points of LLDPEs are higher than the melting points of LDPEs. The precise melting point of an LLDPE depends upon factors such as the

molecular weight and the amount of branching present in the LLDPE. Softening temperature and melting point are distinct properties. Unlike melting point, softening temperature for the claimed LLDPE is determined from a thermo-mechanical analysis (TMA) curve according to JIS K7196 using a specimen having a thickness of 1 mm, at a heating rate of 5 °C/min, by applying pressure.

9. Paragraph [0005] of Miyamoto teaches that the melting point of the ethylene-alpha-olefin copolymer is 110 °C or less. Although Miyamoto discloses that the melting point of the ethylene-alpha-olefin copolymer is 110 °C or less, this range of melting points does not necessarily mean that a copolymer with a softening temperature in the range of 75°C to 97°C will be present. Miyamoto does not provide any examples that show that the ethylene-alpha-olefin copolymer has a softening temperature ranging from 75°C to 97°C. As discussed on page 13 of the present specification, the claimed properties of the claimed metallocene LLDPE require careful control of the molecular structure (including the molecular weight range) of the claimed metallocene LLDPE (*see* page 13, lines 26-35, of the present specification). Miyamoto does not suggest that such careful control is required.

10. Simply because the ethylene-alpha-olefin copolymer disclosed in Miyamoto has a melting point of 110 °C or less does not necessarily indicate that the softening temperature of the ethylene-alpha-olefin copolymer falls within the recited range of softening temperatures in claim 1 or that the method disclosed in Miyamoto would necessarily produce an ethylene-alpha-olefin copolymer having the recited range of softening temperatures in claim 1. The Office Action asserts that the "m-LLDPE taught in Miyamoto which has a density in the overlapping claim range (0.90 - 0.907) will inherently meet the claimed softening point since said polymers are compositionally identical to the claimed polymers" (*see* page 3 of the Office Action). However, the present specification states that "[a] correlation between a density of the soft material layer 15 and a softening temperature thereof

measured by the TMA method is not clearly understood" (*see* specification, page 18, lines 14-16). Thus, it can not be presumed that the ethylene-alpha-olefin copolymer disclosed in Miyamoto and the claimed metallocene LLDPE are compositionally identical, simply based on the specific gravity of the claimed metallocene LLDPE recited in claim 1 and the ethylene-alpha-olefin copolymer disclosed in Miyamoto.

11. Specifically, although Miyamoto discloses a range of densities ranging from 0.900 - 0.925 g/cm^3 and this range overlaps with the specific gravities recited in claim 1 (from 0.888 to 0.907), this overlap in densities does not necessarily equate to an overlap in the recited range of softening temperatures in claim 1. As suggested in the specification, the softening temperature of an LLDPE is not directly or linearly correlated with the density of an LLDPE, as demonstrated by Examples 4, 5, 7, and 8 in Table 1 and Table 2 in the specification of the present application (and corresponding Figure 4). Similarly, the data in Tables 1 and 2 of the present specification also demonstrate that melting temperature is also not directly or linearly correlated with the density of an LLDPE. For example, Examples 4 and 5 both have a density of 0.902 g/cm^3, but softening temperatures of 89.5 °C and 96.3 °C, respectively. Example 7 has a density of 0.904 g/cm^3 and a softening temperature of 94.5 °C, while Example 8 has a density of 0.906 g/cm^3 and a lower softening temperature of 90.6 °C. Furthermore, Comparative Example 1 in Table 2 of the present specification and Comparative Example 1 in Table 2 of Miyamoto both have densities of 0.908 g/cm^3, yet Comparative Example 1 of the present specification has a softening temperature of 104.3 °C (and a DSC melting point of 104 °C) and Comparative Example 1 of Miyamoto has a melting point of 120 °C. Thus, one may not presume or infer that similarities in densities of LLDPEs necessarily indicate equivalent softening temperatures (or melting points). There are several factors that effect the softening temperature of an LLDPE, and only one of these factors is the density of the LLDPE. Accordingly, one may not presume that the overlap of

the range of the recited densities in claim 1 equates to an overlap in the recited range of softening temperatures in claim 1.

12. Lastly, the ethylene-alpha-olefin copolymer disclosed in paragraphs [0006] and [0007] of Miyamoto is distinct from the LLDPE discussed in paragraph [0008] and Table 2 of Miyamoto. As discussed above, paragraph [0005] of Miyamoto teaches that the melting point of the ethylene-alpha-olefin copolymer is 110 °C or less. However, Table 2 of Miyamoto teaches the following:

Table 2

	Embodiment 7	1	2	Comparative 3	Example 4	5
· Outer layer						
Resin Used	O-PET	O-PET	OPP	O-PET	OPP	O-PET
Thickness (μm)	16	25	25	16	25	16
· Second Layer						
Resin Used	ONY	--	--	OPP	--	ONY
Thickness (μm)	12			15		12
· Interlayer						
Resin Used	PE	LLDPE	--	5%EVA	LLDPE	LDPE
Thickness (μm)	40	30		30	20	40
Density (g/cm^3)	0.910	0.908		0.933	0.915	0.919
Melting Point (°C)	102	120		125	125	128
Tear Resistance (kg/cm)	124	85		45	105	60
Tension Shock Resistance ($kg-cm/cm^2$)	120	75		35	100	45
Cloudiness (%)	11	20		13	18	8
· Adhesion Layer						
Adhesive Used	Styrene System	PET System	Polyurethane System	EVA System	Acryl System	EVA System
Conductive Micro Powder	SnO_2	ZnO_2	SnO_2	SnO_2	Surface Active Agent	SnO_2
(Weight by Parts)	400	150	7	1200	2	1500

While the melting point of the ethylene-alpha-olefin copolymer disclosed in paragraph [0005] of Miyamoto is 110 °C or less, Table 2 of Miyamoto shows that the melting point of the LLDPE is 120 °C and 125 °C (*see* Comparative Examples 1 and 4 in Table 2 of Miyamoto).

This further demonstrates that the LLDPE contemplated by Miyamoto is distinct from the ethylene-alpha-olefin copolymer disclosed in paragraphs [0006] and [0007] of Miyamoto having a melting point of 110 °C or less.

13. For these reasons, Miyamoto fails to disclose the claimed metallocene linear low-density polyethylene with the recited range of softening temperatures in claim 1.

14. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Date: Nov. 26, 2009

SHINICHI KATO

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